

Surround Visual & Sensory Feedback for Robotic Arm Pilots, Phase II

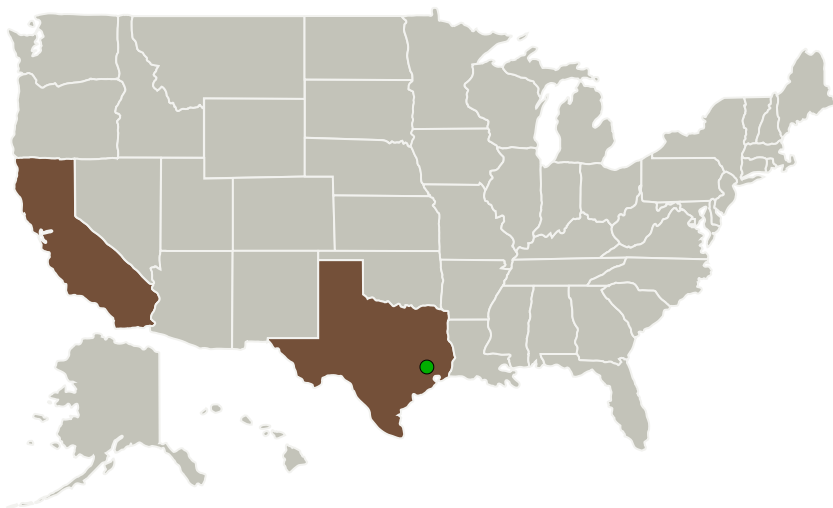
Completed Technology Project (2016 - 2019)




Project Introduction

Robotic systems in space carry a lower risk tolerance than robotic systems on earth. Humans require faster learning curves for introduction of more complex robotics in space, but the only way to accomplish this is to acquire open source software on easily adaptable hardware. This will enable astronauts to perform multiple design cycles while they are in space, such as on the ISS. Swift Engineering is proposing a lightweight surround visual and sensory feedback system for robotic pilots that can easily be transferable, and is modular and scalable to any robotic system. Using 360 degree cameras, LIDAR, and a Myo armband, the robotic pilot will be able to quickly adapt to any environment from anywhere, including mission control. The key is that all of this work is being built from open source platforms so that nothing becomes overly proprietary, and astronauts can perform design cycles in space quickly and efficiently.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Swift Engineering, Inc.	Lead Organization	Industry	San Clemente, California
 Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas



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Primary U.S. Work Locations

California

Texas

Project Transitions

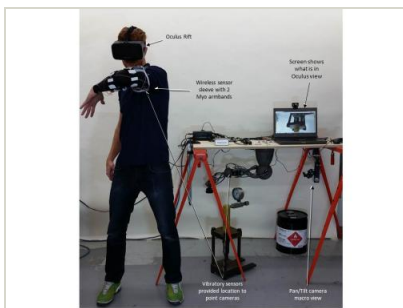
May 2016: Project Start

September 2019: Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/137683>)

Images



Briefing Chart Image

Surround Visual & Sensory Feedback for Robotic Arm Pilots, Phase II
(<https://techport.nasa.gov/image/127771>)



Final Summary Chart Image

Surround Visual & Sensory Feedback for Robotic Arm Pilots, Phase II
(<https://techport.nasa.gov/image/135728>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Swift Engineering, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

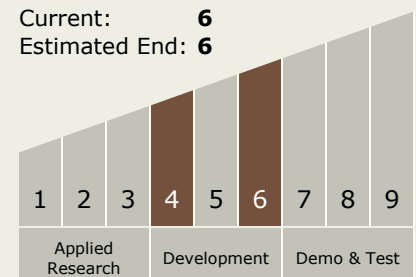
Carlos Torrez

Principal Investigator:

Andrew Streett

Technology Maturity (TRL)

Start: 4
Current: 6
Estimated End: 6



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Technology Areas

Primary:

- TX04 Robotic Systems
 - └ TX04.3 Manipulation
 - └ TX04.3.1 Dexterous Manipulation

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System